

NEW SPECIES AND NEW RECORDS OF TASMANIAN CAVE CARABIDAE (COLEOPTERA)

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Abstract

Tasmanotrechus elongatus sp. n. (Trechini) and *Pterocyrtus cavicola* sp. n. and *Idacarus punctipennis* sp. n. (both Zolini) are described from Tasmanian caves. New records from caves for *T. leai* (Sloane), previously known only from surface habitats in the State, and for the troglobitic *T. cockerilli* Moore are also reported.

Introduction

Despite the discovery of extensive cave-adapted faunas in tropical Australia (e.g., Howarth 1988), Tasmania remains the chief centre for cavernicolous Carabidae in this country. This dominant position has been consolidated by the results of recent expeditions, which have brought to light some further new troglobites and troglaphiles, reported by Eberhard *et al.* 1991. Three such new species are described in the present paper. Unfortunately, however, others mentioned in that report are currently represented by inadequate material (a common situation in cave faunal studies) and their descriptions must therefore be deferred.

TRIBE TRECHINI

Tasmanotrechus elongatus sp. n. (Figs 1, 5)

Types: holotype ♂, TASMANIA, Cave BH-202, Bubbs Hill (42°07'S, 145°46'E), 31.xii.1986, S. Eberhard (Australian National Insect Collection, CSIRO, Canberra) (ANIC); paratypes, 5 ♀♀ (one immature), same data as holotype, (S. Eberhard Collection, University of Tasmania); 2 ♀♀, same locality, 2.iii.1988, A. Clarke (B.P. Moore Collection, now lodged with ANIC).

Depigmented; mostly light reddish- or yellowish-brown; microsculpture very fine, quadrate on head, transverse elsewhere.

Head elongate; eyes reduced but pigmented and evidently functional, scarcely projecting beyond genae; frontal furrows deep on disc, shallow behind eyes; mandibles slender, subporrect, finely pointed. Pronotum quadrate, cordate; base and apex subequal, truncate; sides widest at front third, obliquely contracted to front angles, widely sinuate before base; front angles obtuse, not prominent; hind angles sharp, prominent, markedly reflexed; marginal channel narrow and shallow in front, becoming deeper and markedly explanate towards base; 2 marginal setae present, the anterior in marginal channel, posterior on margin before hind angle. Elytra free, elongate-oval, depressed on disc, finely striate; striae subcrenulate; discal setiferous pores well marked; humeri effaced; aedeagus (Fig. 5) slender; median lobe regularly curved in lateral view; ostium subterminal.

Length 4.7-5.9 mm; max. width 1.8-2.5 mm.

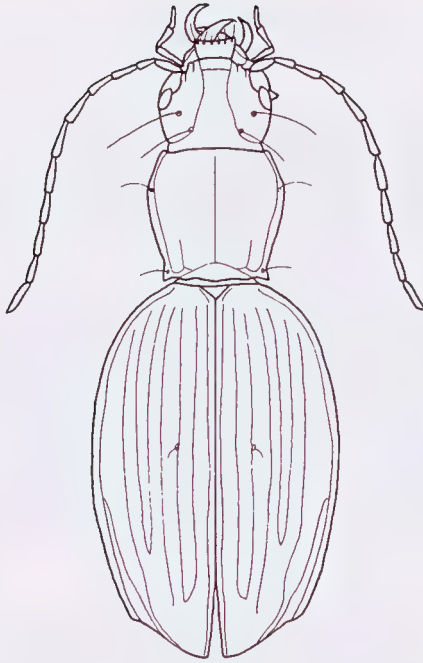


Fig. 1. *Tasmanotrechus elongatus* sp.n., holotype ♂; natural length = 5.9 mm.

This new species is easily distinguished within its genus by its slender form, prominent pronotal hind angles and pale colour.

Tasmanotrechus cockerilli Moore

A specimen with the following data: Kelly's Pot, Mole Creek, 21.iii.1987, S. Eberhard (Eberhard Coll.), is now regarded as belonging to this rather variable species, although it differs from the type series, from George's Hall and Scott's Caves (Moore 1972), in its somewhat more slender build; it was referred to in the report of Eberhard *et al.* (1991) under "*Tasmanotrechus* sp.n. C".

Tasmanotrechus leai (Sloane)

This species has been collected previously only from surface habitats but the following captures from caves must now be recorded: Bubbs Hill, caves BH5, BH13, BH16 and BH203, A. Clarke (Moore Coll.); the specimens in question are of a somewhat more slender build than seen in surface-dwelling populations but the aedeagi show no significant divergences.

In view of the above new information, my earlier key (Moore 1983) to the species of *Tasmanotrechus* needs to be modified as follows:

- 1 Pronotum quadrate or subquadrate, cordate, with hind angles sharp; (cave adapted species)..... 2
 Pronotum transverse (width/length 1.15 or greater), trapezoidal, with hind angles obtuse. 3
- 2 Size larger (length 6.0-6.5 mm); less depigmented; pronotal hind angles acute; elytral border ending in an abrupt prominence near peduncle *cockerilli* Moore
 Size smaller (length 4.7-5.9 mm); more depigmented; pronotal hind angles right; elytral border not prominent near peduncle *elongatus* sp.n.
- 3 Pronotum more transverse (width/length c. 1.25); elytral outer striae weak or obsolescent 4
 Pronotum less transverse (width/length c. 1.15); elytral outer striae strong *leai* (Sloane)
- 4 Pronotal side margins slightly sinuate before hind angles; elytra broadly ovate..... *concolor* Moore
 Pronotal side margins not sinuate; elytra less rounded at sides *compactus* Moore

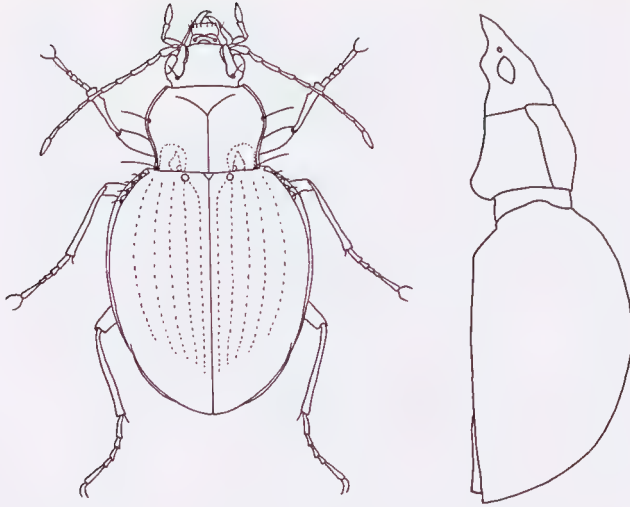
TRIBE ZOLINI

Pterocyrtus cavicola sp. n. (Figs 2, 3, 6)

Types: holotype ♂, Tasmania South-west, Bill Nielson Cave, Nicholls Range, 28.ii.1976, G.J. Middleton (ANIC); paratypes, 2 ♀♀, same data as holotype (Moore Coll.); 4 ♂♂, 1 ♀, same locality, 19.ii.1987, S. Eberhard (Eberhard Coll.).

Flightless; body mostly shining, pitchy-black, margins of elytra, epipleura, terminal abdominal sternite and appendages lighter, reddish.

Head small, smooth, triangular; frontal furrows deep, S-shaped; eyes small, rather prominent, enclosed behind by swollen genae; labrum rectangular, 6-setose; mandibles slender, acutely pointed. Pronotum smooth, transverse (width/length 1.3 in holotype), cordate, widest at middle, much broader at base than at apex; base truncate; apex slightly emarginate; sides rounded about middle, obliquely contracted to apex and sinuate before base; front angles obtuse, not prominent; hind angles rectangular; basal foveae broad, deep, with 2 depressions separated by a weak ridge, bordered externally by a strong marginal carina and internally, by 2-5 deep punctures; 2 marginal setae on border, one at mid-point, the other at hindangle. Elytra soldered, very convex, globose, 6-striate on disc; striae punctate, strong on disc but evanescent on basal and apical declivities and towards sides; no scutellary strioles nor discal pores; apical strioles well marked; terminal abdominal sternite 2-setose in male, 4-setose in female; legs slender; male anterior tarsi scarcely modified; aedeagus (Fig. 6) lightly sclerotised and without distinctive armature in the internal sac; median lobe laterally compressed;



Figs 2-3. *Pterocyrtus cavicola* sp.n., paratype ♀ (2) in dorsal view; (3) in lateral view; natural length = 6.0 mm.

ostium covering all of dorsum.

Length: 5.9-7 mm.; max.width 2.8-3.5 mm.

Five valid species of *Pterocyrtus* Sloane, all surface-dwelling, are listed by Moore *et al.* (1987), 4 of them from Tasmania and one from alpine Victoria. The Victorian species, *P. truncaticollis* Sloane, differs from the others in its pterostichine, rather than trechine facies, and by possessing 2 supraorbital setae on each side of the head; it clearly belongs to a separate group within the genus (Sloane 1923). The new Tasmanian species differs from all others by its larger size (5.9-7 mm vs 3.6-5.5 mm for the rest), heavier build, more convex elytra (Fig. 3) and stronger elytral striae; it shows no obvious adaptation to cavernicolous habits and on general appearance, could be taken for another epigean species of *Pterocyrtus*, or even mistaken for a psydrine of the genus *Theprisa* Moore. However, although *P. cavicola* has also been taken from Biglandulosum Cave in the neighbouring Franklin River karst system (2♂♂, 1♀, 12.iii.1982, K.W. Kiernan, Col. B.P. Moore), it has not been present in any collections that I have examined from nearby surface habitats.

Idacarabus punctipennis sp. n. (Figs 4, 7)

Type: holotype ♂: Tasmania, Capricorn Cave (MR-204), Mt Ronald Cross, 840 m, 30.xii.1986, S. Eberhard (ANIC).

Elongate; apterous; mostly shining reddish-brown, the palpi and antennae lighter, yellowish red.

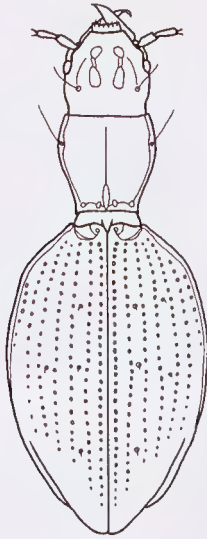
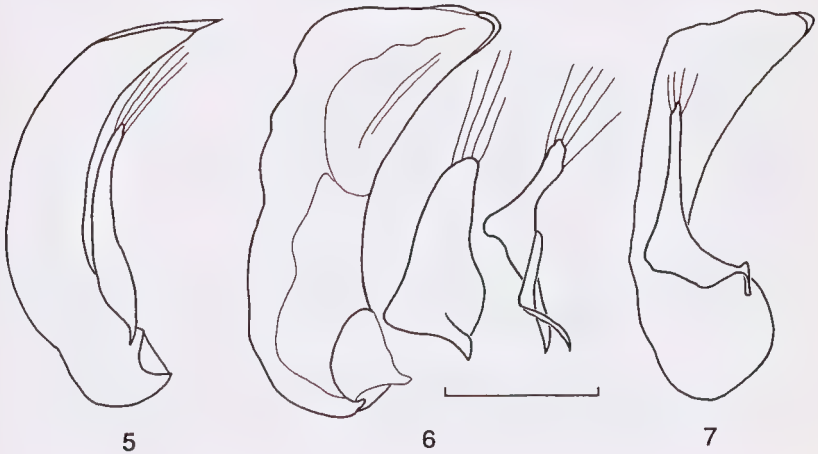


Fig. 4. *Idacarabus punctipennis* sp. n., dorsal habitus, reconstructed from the contorted male holotype; natural length = 4.5 mm.



Figs 5-7. Aedeagi in left lateral views. (5) *Tasmanotrechus elongatus* sp.n. (6) *Pterocyrtus cavicola* sp.n. (7) *Idacarabus punctipennis* sp.n. All to same scale; scale line = 0.25 mm.

Head elongate; frontal furrows rather deep, slightly divergent behind; eyes small but pigmented, slightly more prominent than genae; labrum trapezoidal, 6-setose; mandibles short, acutely pointed; antennae shorter than in other described species, pubescent from middle of 3rd segment. Pronotum smooth, transverse (width/length 1.3), cordate, widest about front 3rd; base and apex truncate; sides slightly rounded on front 2/3, then obliquely contracted and slightly sinuate before basal angles; front and hind angles obtuse, not prominent; only the anterior marginal seta present; 2 shallow basal foveae on each side of midline. Elytra soldered, ovoid, strongly punctato-striate; no scutellary striae; humeri effaced; 3rd intervals with 3 small setiferous pores; 5th intervals with 1-2 such pores; legs of moderate length; male anterior tarsi with 2 basal segments weakly expanded and inwardly dentate; aedeagus (Fig. 7) similar in form to that of *I. troglodytes* Lea.

Length 4.5 mm.; max. width 1.7 mm.

This distinctive new species differs from the 3 other species of *Idacarus* listed by Moore *et al.* (1987) by its smaller size and in particular, by its strongly punctate elytral striae. Unfortunately, the holotype, which has been preserved until recently in spirit, is currently the only known specimen.

Acknowledgments

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References

- EBERHARD, S.M., RICHARDSON, A.M.M. and SWAIN, R. 1991. *The invertebrate cave fauna of Tasmania*. Pp vii + 174. University of Tasmania.
- HOWARTH, F. 1988. Environmental ecology of north Queensland caves: or why are there so many troglobites in Australia. Pp. 76-84 in Pearson, L. (ed.) *Tropicon, Proceedings of the 17th ASF Biennial Conference*. Australian Speleological Federation, Cairns.
- MOORE, B.P. 1972. A revision of the Australian Trechinae (Coleoptera: Carabidae). *Australian Journal of Zoology Supplement* 18: 1-61.
- MOORE, B.P. 1983. New Tasmanian Trechini (Coleoptera: Carabidae). *Australian Entomological Magazine* 10: 1-5.
- MOORE, B.P., WEIR, T.A. and PYKE, J.E. 1987. Carabidae. Pp. 23-320 in Walton, D. (ed.), *Zoological Catalogue of Australia. Coleoptera: Archostemata, Myxophaga and Adephaga*. Vol. 4. AGPS: Canberra.
- SLOANE, T.G. 1923. Studies in Australian Entomology no. XVIII. New genera and species of Carabidae (Scaritini, Pterostichini, Merizodini, Bembidionini, Trechini, Odacanthini, Panagaeini, Licini, and Lebiini). *Proceedings of the Linnean Society of New South Wales* 48: 17-39.